

STUDIES IN THE EUPATORIEAE (ASTERACEAE). CLXXXIX.

ADDITIONS TO ACRITOPAPPUS.

R. M. King and H. Robinson
Department of Botany
Smithsonian Institution, Washington, D.C., 20560.

The genus Acritopappus represents one of the most easily distinguished elements in the tribe Eupatorieae with its combination of shrubby to arborescent habit, coriaceous to subcoriaceous leaves, defective pappus, and usually paleaceous non-conical receptacles. The flowers appear "pinkish" or "lilac" with the color concentrated in the anthers. The genus was established by King and Robinson in 1972 for three species from eastern Brazil, two of which had been placed variously in the genera Ageratum and Alomia. Two additional species were added five years later (King and Robinson, 1977), including one described as new. Recent study of material from Bahia and Minas Gerais has encountered six additional new species which are described in this paper, and twelve species are now recognized in the genus. A key to the species is presented at the end of the paper.

Acritopappus hagei R.M.King & H.Robinson, sp. nov.

Plantae fruticosae ad 3 m altae. Caules subhexagonales glabri, internodis ultimis non longioribus. Folia opposita, petiolis ca. 0.5-1.0 mm longis; laminae ovatae vel ovato-ellipticae plerumque 7-15 cm longae et 2.5-5.5 cm latae base obtuse cuneatae sensim breviter acuminatae margine serratae vel sub-integrae apice breviter acuminatae supra glabra in nervulis vix prominulis subtus subtomentosae in nervis et nervulis valde prominulis. Inflorescentiae terminales late cymosae vel sub-corymbosae, internodis inferioribus aliquantum elongatis, ramis suboppositis vel alternis ascendentibus, ramis ultimis 1-7 mm longis dense puberulis vel subtomentellis. Capitula campanulata 7-8 mm alta et 3-4 mm lata; squamae involucri ca. 25 subaequales anguste oblongae 3-4 mm longae et 1.0-1.3 mm latae plerumque 4-costatae margine anguste scariosae sparse fimbriatae apice breviter indurate acutae extus sparse puberulae vel subglabrae. Flores 25-30 in capitulo; corollae pallide lavandulae 3.5-4.0 mm longae sparse breviter stipitato-glanduliferae superne densius, lobis 0.5 mm longis et 0.4 mm latis in cellulis interioribus brevibus breviter papillois; thecae antherarum ca. 1.5 mm longae. Achaenia ca. 3 mm longa glabra; aristae pappi 4-5 ad 1.0 mm longae. Grana pollinis ca. 23 μ m in diam.

TYPE: BRAZIL: Bahia: Munic. de Mucugê, a 3 km ao S de Mucugê. Na estrada que vai par Jussiape. Elev. ca. 1000 m. Shrub 1 1/2 meters tall, flowers lavender. July 26, 1979. R.M.King, S.Mori,

T.S.dos Santos, J.Hage 8164 (Holotype, RB; Isotypes, CEPEC, US). PARATYPES: Same data as holotype, King et al. 8154, 8156 (CEPEC, US); Serra do Sicorã, 5 km south of Andaraí on road to Mucugê, by bridge over the Rio Paraguaçu. Very rocky hillside, with sandstone rocks, and rocky river with scrubby vegetation of small trees and shrubs. Alt. ca. 400 m, 41°19'W, 12°50'S. Shrub to 3 m. Leaves rather coriaceous, glossy dark green above grey green below. Phyllaries pale green. Corolla pale lilac-pink. 12.2.77. R.M.Harley, S.J.Mayo, R.M.Storr, T.S.dos Santos & R.S.Pinheiro 18573 (CEPEC, K, US).

Acritopappus hagei is one of a series of species with short greyish tomentosity on the undersurface of the leaf. One other of the series, *A. subtomentosus* n. sp., has broad leaf blades, but details of the leaf base and involucre are different. In the present species the leaf bases are cuneate with a slight acumination rather than sharply rounded, and the leaf tips are comparatively short-acuminate. The involucral bracts of *A. hagei* are obtuse to short-acute and indurated as in the sympatric *A. confer-tum* (Gardn.) K. & R., while in *A. subtomentosus* the tips are rounded with a narrowly scarious margin as in *A. longifolius* (Gardn.) K. & R. with which it is sympatric in Minas Gerais. The corollas of *A. hagei* also seem to differ from those of *A. subtomentosus* by having shorter, more crowded, more bulging cells on the inner surfaces of the lobes. The achenes of *A. hagei* have distinct slender pappus aristae up to 1 mm long, while the achenes from *A. subtomentosus* have little or no pappus.

Acritopappus morii R.M.King & H.Robinson, sp. nov.

Plantae fruticosae ad 2 m altae. Caules subhexagonales glabri, internodis ultimis ad 35 cm longis. Folia opposita sessilia; laminae lineares vel peranguste ellipticae 5-50 cm longae et 0.8-3.3 cm latae base anguste subpetioliformes margine integrae apice anguste acutae supra glabrae subtus subtomentosae, nervis secundariis pinnatis brevibus, nervis et nervulis subtus valde prominentibus. Inflorescentiae elongate paniculatae in partibus secundariis plano-corymbosae; internodis inferioribus elongatis, ramis primariis oppositis ascendentibus, ramis ultimis 0-2 m longis sparse puberulis. Capitula campanulata 6-7 mm alta et ca. 4 mm lata; squamae involucri 15-18 plerumque subaequales anguste oblongae vel lanceolatae 4-6 mm longae et ad 1 mm latae plerumque 4-costatae margine et apice anguste subscariosae sparse fimbriatae apice rotundatae extus glabrae. Flores saepe 20-25 in capitulo; corollae pallide lavandulae ca. 3.5 mm longae superne sparse breviter stipitato-glanduliferae, tubis 0.7-1.0 mm longis indistinctis, faucis ca. 2 mm longis, lobis ca. 0.6 mm longis et 0.5 mm latis; thecae antherarum distincte lavandulae ca. 1.2 mm longae. Achaenia ca. 2 mm longa glabra; pappus nullus. Grana pollinis 20-22 µm in diam.

TYPE: BRAZIL: Bahia: Munic. de Mucugê. Estrada que liga Mucugê cam Andaraí a 11 kms de primeiro. Elev. 1150 meters. July

27, 1979. R.M.King, S.Mori, T.S.dos Santos & J.Hage 8172 (Holotype, RB; Isotypes, CEPEC, US). PARATYPE: BRAZIL: Bahia: Serra do Sincorá. 22 km S. of Andaraí on road to Mucugê. Open area of peaty marsh. Wetter areas predominantly sedge, grasses and other Monocots, on white sand and peat with some small shrubs, with scattered rocky bluffs with scrub and small trees. Approx. 41° 20'W, 12°57'S. Alt. ca. 1000 m. Shrub to 2 m high with leaves up to ca. 50 cm and inflorescences on long stems. Corolla lilac. 16 Feb. 1977. R.M.Harley, S.J.Mayo, R.M.Storr, T.S.dos Santos & R.S.Pinheiro 18729 (CEPEC, K, US).

Acritopappus morii is thoroughly distinct in the narrow leaves which lack a well-defined petiole. The apices of the leaves are also distinctive in being narrow but not acuminate. The internodes of the inflorescence are longer than those seen in any other member of the genus, and they are responsible for the elongate form of the panicle. Some of the vegetative internodes are scarcely 2 cm long. The leaf undersurface has a pubescence and prominent venation as in A. micropappus and A. hagei.

Acritopappus prunifolius R.M.King & H.Robinson, sp. nov.

Plantae subarborescentes ca. 3 m altae multo ramosae. Caules hexagonales inferne sensim teretes inter costas dense puberuli, internodis plerumque 1-2 cm longis. Folia opposita, petiolis ca. 4-5 mm longis; laminae ellipticae plerumque 2.5-3.5 cm longae et 1.2-1.7 cm latae base cuneatae et breviter acuminatae margine multo regulariter serrulatae apice obtusae interdum minute apiculatae supra et subtus glabrae, nervis distincte pinnatis, nervis et nervulis utrinque distincte prominulis. Inflorescentiae late corymbosae; ramis primariis oppositis erecto-patentibus dense puberulis, ramis ultimis nullis. Capitula anguste campanulata ca. 6 mm alta et 2 mm lata; squamae involucri ca. 7 anguste oblongae plerumque 5-6 mm longae et 1.0-1.5 mm latae 2-4-costatae margine anguste scariosae apice breviter acutae extus glabrae vel subglabrae; paleae subnullae. Flores ca. 5-6 in capitulo; corollae 3.0-3.5 mm longae extus multo sparse stipitato-glanduliferae, tubis ca. 1 mm longis, lobis ca. 0.6 mm longae et 0.5 mm latae; thecae antherarum ca. 1.2 mm longae. Achaenia 2.0-2.5 mm longa glabra; aristae pappi breves vel nullae ad 0.3 mm longae. Grana pollinis ca. 20 µm in diam.

TYPE: BRAZIL: Bahia: Serra do Tombador. ca. 7 km S. of town of Morro do Chapéu. Low woodland on middle slopes of Morro do Chapéu, elev. c. 1125 m. Brittle-stemmed treelet ca. 3 m X 2 m. 17 Feb. 1971. H.S.Irwin, R.M.Harley & G.L.Smith 32394 (Holotype, US).

The species is most distinct in the small elliptical and glabrous leaves. The closely congested heads, the more numerous glands on the corolla, and the blunt tips of the leaves all suggest closest relationship to A. micropappus and A. santosii, but the latter two differ by their more ovate leaves with pubescence and strongly prominent venation below, and by the long

lower internodes of the inflorescences.

Acritopappus santosii R.M.King & H.Robinson, sp. nov.

Plantae frutescentes ad 2.25 m altae mediocriter ramosae. Caules teretes striati superne subtomentosi, internodis plerumque 2-3 cm longis. Folia opposita, petiolis 2-4 mm longis; laminae late ovatae vel subdeltoideae 1.7-3.0 cm longae et 1.8-2.8 cm latae base truncatae margine multo dentatae apice obtusae et minute apiculatae supra glabrae et sparse minute glandulo-punctatae subtus subtomentosae fere ad basem trinervatae vel subtrinervatae, nervis et nervulis subtus valde prominentibus. Inflorescentiae cymosae vel subcorymbosae, internodis inferioribus elongatis, ramis primariis suboppositis vel alternis ascendentibus subtomentosis, ramis ultimis nullis. Capitula anguste campanulata 6-7 mm alta 2.0-2.5 mm lata; squamae involucri interiores ca. 5 plerumque subaequales oblongae vel anguste oblongae bi-costatae margine late scariosae fimbriatae saepe lacinatae apice obtusae vel minute apiculatae extus glanduliferae et sparse puberulae; squamae exteriores ca. 2 ca. 2-3 mm longae; paleae nullae vel subnullae. Flores ca. 5 in capitulo; corollae pallide lavandulae ca. 4 mm longae extus multo plerumque stipitate glanduliferae, tubis ca. 1 mm longis, lobis ca. 0.6 mm longis et latis; thecae antherarum distincte lavandulae ca. 1.5 mm longae. Achaenia ca. 3 mm longa glabra; pappus coroniformes ad 1 mm altus laciniatus. Grana pollinis 20-22 μ m in diam.

TYPE: BRAZIL: Bahia: Summit of Morro do Chapau, ca. 8 km SW of the town of Morro do Chapau to the west of the road to Utinga. Sandstone rocks, with open sand in flatter areas. Open scrub in exposed sites to scattered low woodland. Approx. 41°12'W, 11°35' S. Alt. ca. 1000 m. Shrub to 2.25 m. Leaves dull green above, paler beneath. Phyllaries grey-green. Florets lilac. 3 March 1977. R.M.Harley, S.J.Mayo, R.M.Storr, T.S.dos Santos & R.S. Pinheiro 19350 (Holotype, CEPEC; Isotypes K, US).

Acritopappus santosii is closely related to A. micropappus and the two have almost identical habits. Nevertheless, during a preliminary identification of the Harley collections, Charles Jeffrey segregated the material of the present species, evidently because of the very distinctive coroniform laciniately toothed pappus. The character by itself, though striking, might not justify a species rank, but the leaves seem consistently different in their truncate bases and trinervate venation. Four specimens and a type photograph of A. micropappus all show the bases of the leaf blades obtusely angled with the basal series of secondary veins parallel or subparallel with the margin.

The pappus of the new species is unique in Acritopappus, but it resembles that of Scherya which is also from Bahia. The latter genus differs from Acritopappus in more important features, however, such as its herbaceous habit and its linear leaves with longitudinally parallel venation.

Acritopappus subtomentosus R.M.King & H.Robinson, sp. nov.

Plantae frutescentes vel arborescentes ca. 4 m altae. Caul-es subhexagonales superne subtomentosi, internodis plerumque 1.5-4.0 cm longis. Folia opposita, petiolis 11-22 mm longis; laminae ovato-lanceolatae 7-13 cm longae et 2.0-3.7 cm latae base rotundatae vel breviter obtusae margine minute serrulatae apice anguste longe acuminatae supra minute puberulae vel sparse subtomentosae dense glanduliferae subtus subtomentosae in nervis et nervulis leniter prominulae, nervis secundariis distincte pinnatis interdum indistinctis. Inflorescentiae terminales corymbosae vel subcymosae, ramis primariis alternis ascendentibus, ramis ultimis 0-2 mm longis tomentosis. Capitula anguste campanulata ca. 6 mm alta et 2.5 mm lata; squamae involucri ca. 12 plerumque subaequal-es oblongae 3.0-3.5 mm longae et 0.8 mm latae valde bi-costatae margine et apice distincte anguste scariosae apice rotundatae extus superne puberulae. Flores ca. 15 in capitula; corollae pallide lavandulae? ca. 4 mm longae superne sparse breviter stipitato-glanduliferae, tubis ca. 1 mm longis, lobis 0.5 mm longis et 0.4 mm latis in cellulis interioribus elongatis sub-mammillosis; thecae antherarum distincte lavandulae 1.5 mm longae. Achaenia 2.0-2.2 mm longa glabra; aristae pappi nullae vel paucae ad 0.4 mm longae. Grana pollinis 20-22 μ m in diam.

TYPE: BRAZIL: Minas Gerais: Serra do Espinhaço. Campo on white sand and cerrado among outcrops, ca. 5 km N. of São João da Chapada, road to Inhaí. Elev. 1200 m. Outcrops. Shrub or small tree to ca. 4 m tall. Heads lavender. 28 March 1970. H.S.Irwin, S.F.da Fonseca, R.Souza, R.Reis dos Santos & J.Ramos 28506 (Holotype, UB; Isotypes NY, US).

The shape of the leaf and the rounded scarious tips of the involucre bracts in A. subtomentosus indicate relationship to A. longifolius, but the latter species has the leaves and involucre bracts glabrous. The involucre bracts of the new species are notable for their regularly oblong shape. In Bahia A. hagei and A. confertus represent a similar pubescent versus glabrous species pair.

Acritopappus teixeirae R.M.King & H.Robinson, sp. nov.

Plantae herbaceae perennes ad 2 m altae. Caul-es flavo-virides subteretes striati subglabrae vel obscure glanduliferae, internodis plerumque 2.5-4.0 mm longis. Folia opposita; laminae sessiles lanceolatae plerumque 8-16 cm longae et 1-2 cm latae base anguste cuneatae subpetioliformes margine serrulatae vel subintegrae apice breviter caudato-acuminatae supra et subtus glabrae vel subglabrae in nervis et nervulis prominentes, nervis secundariis pinnatis utrinque ca. 7 ascendentibus. Inflorescentiae laxae corymboso-paniculatae in ramis dense corymbosae, internodis inferioribus elongatis ad 13 cm longis, ramis primariis alternis minute puberulis et obscure glanduliferis, ramis ultimis 2-4 mm longis puberulis vel subtomentellis, bracteis subinvolucralibus paucis linearibus ad 3 mm longis. Capitula breviter

campanulata ca. 5 mm alta et 3-4 mm lata; squamae involucri ca. 16 anguste oblongae vel lanceolatae 2.5-3.0 mm longae et 0.5-1.0 mm latae extus plerumque valde bicostatae interiores margine distincte scariosae apice breviter acutae vel obtusae vel subtruncatae induratae. Flores ca. 18 in capitulo; corollae albae vel lavandulae vel azureae 2.0-2.3 mm longae tubiformes vel leniter infundibulares extus plerumque in tubis minute stipitato-glanduliferae, tubis ca. 0.5 mm longis, faucibus ca. 1 mm longis, lobis ca. 0.5 mm longis et 0.4 mm latis intus dense distincte mamillois; filamenta tota 0.3 mm longa; thecae antherarum sordidae 0.8 mm longae. Achaenia ca. 1.8 mm longa glabra; pappus nullus. Grana pollinis ca. 22 μ m in diam.

TYPE: BRASIL: Bahia: Serra do Rio de Contas. Between 2.5 and 5 km S of the Vila do Rio de Contas on side road to W of the road to Livramento, leading to the Rio Brumado. Alt. ca. 980 m. Approx. 41°50'W, 13°36'S. Rocky riverside with rapids, riverine vegetation, cerrado with sandstone outcrops and some grassland areas subject to flooding but dry at time of collection. Large herb to 2 m, branching from base. Leaves mid-green, glossy beneath. Phyllaries pale green. Corolla white, anthers yellow, styles white. 28 March 1977. R.M. Harley, S.J. Mayo, R.M. Storr, T.S. Santos & R.S. Pinheiro 20075 (Holotype CEPEC; isotype US). PARATYPE: BRASIL: Bahia: Município de Livramento do Brumado. BA 156, entre Livramento do Brumado/Rio de Contas, a 5 km a NW do primeiro. Caatinga. Elev. 600 meters. Common shrubs to 1½ meters tall, flowers lavender or blue. July 19, 1979. R.M. King, S. Mori, T.S. Santos & J. Hage 8043 (CEPEC).

The corollas and anthers of *Acritopappus teixeirae* are shorter than those of other members of the genus, and they are scarcely exerted beyond the involucre bracts and paleae. The species has narrow leaves with little or no petiole and elongated lower nodes in the inflorescence, both characters shared with *A. morii*, but the latter is a large shrubby plant with tomentellous lower leaf surfaces and non-acuminate leaf tips.

The species is named for Dr. Alcides Teixeira of CNPq in Brasília, head of Programa Flora.

The following previously named species is also a member of the genus.

Acritopappus heterolepis (Baker) R.M. King & H. Robinson, comb. nov. *Ageratum heterolepis* Baker in Martius, Flora Brasiliensis 6 (2): 198. 1876.

Key to the species of *Acritopappus*

1. Leaves with broadly rounded sessile bases (Bahia)
 - A. harleyi K. & R.
1. Leaves with narrow or distinctly petiolate bases 2

2. Leaf tips obtuse to shortly acute 3
3. Leaves essentially glabrous, with shallowly prominulous veins, margins evenly serrulate, venation strictly pinnate (Bahia) A. prunifolius K.& R.
3. Leaves subtomentose below, pubescence nearly obscuring the areolae, venation of the undersurface very prominent, margins often rather coarsely dentate 4
4. Pappus of a few separate small aristae; leaf blades not truncate at base, veins slightly congested toward base of blade (Bahia) A. micropappus (Baker) K.& R.
4. Pappus a fused laciniate crown; leaf blades truncate at base, trinervate from near base (Bahia) A. santosii K.& R.
2. Leaf tips narrowly acute to narrowly acuminate 5
5. Undersurfaces of leaf blades and sometimes outer surfaces of involucre bracts distinctly puberulous to griseo-tomentellous 6
6. Leaves tapering to base without distinct petiole, leaf tips narrowly acute; inflorescence with long lower internodes (to 30 cm) (Bahia) A. morii K.& R.
6. Leaves with distinct petiole, petiole usually 7-30 mm long, leaf tips acuminate; inflorescence without extremely long lower internodes 7
7. Inflorescence with heads all on distinct peduncles up to 10 mm long, heads with ca. 35 flowers; leaf blades lanceolate with narrowly cuneate bases (Bahia) A. heterolepis (Baker) K.& R.
7. Inflorescence with heads usually congested on short peduncles, heads with 15-30 flowers; leaf blades ovate to ovate-lanceolate 8
8. Base of leaf blade cuneate to acuminate; involucre bracts short-acute with indurated tips; heads with 25-30 flowers (Bahia) A. hagei K.& R.
8. Base of leaf blade usually abruptly rounded; involucre bracts with rounded narrowly scarious tips; heads with ca. 15 flowers (Minas Gerais) A. subtomentosus K.& R.

5. Undersurfaces of leaf blades and involucre bracts essentially glabrous 9
9. Corollas 2.0-2.3 mm long; leaf blades mostly flat in pressed specimens, not conduplicate; inflorescence with lower internodes usually over 10 cm long (Bahia)
A. teixeirae K. & R.
9. Corollas 3.5-5.0 mm long; leaf blades usually distinctly arching and often conduplicate in pressed specimens; inflorescence with lower internodes usually less than 6 cm long 10
10. Heads with ca. 15 involucre bracts and 25-30 flowers (Minas Gerais) A. irwinii K. & R.
10. Heads with 6-10 involucre bracts and 6-15 flowers . . 11
11. Involucre bracts obtusely acute with indurated tips; leaf tips narrowly acuminate (Bahia, Ceará)
A. confertus (Gardn.) K. & R.
11. Involucre bracts with rounded or truncate narrowly scarious tips; leaf tips very long and filiform-acuminate (Minas Gerais)
A. longifolius (Gardn.) K. & R.

Literature Cited

- King, R. M. and H. Robinson 1972. Studies in the Eupatorieae (Asteraceae) CIX. A new genus, Acritopappus. *Phytologia* 24 (5): 401-403.
- _____ and _____. 1977. Studies in the Eupatorieae (Asteraceae). CLXVI. A new genus Scherya and additions to Acritopappus. *Phytologia* 38 (2): 99-105.

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ASTERACEAE of BAHIA BRAZIL

Acritopappus hagei R. M. King & H. Robinson, Holotype,
Jardim Botânico, Rio de Janeiro. Photos by Victor E. Krantz,
Staff Photographer, National Museum of Natural History.



ASTERACEAE of BAHIA, BRAZIL

Acrítopappus morii R. M. King & H. Robinson, Holotype,
Jardim Botânico, Rio de Janeiro.



Acritopappus prunifolius R. M. King & H. Robinson, Holotype,
United States National Herbarium.



2851645

A. SANTOS HERBARIUM

Acrítopappus santosii R. M. King & H. Robinson, Isotype,
United States National Herbarium.



THE NEW YORK BOTANICAL GARDEN
Plants of the Flacato do Brasil

Mundo de Minas Gerais
Serra de Bapitanga

No. 28506

Shrub or small tree to ca. 1 m tall. Heads
lavender. Outcrops. Campo on white sand and
cerrado among outcrops, ca. 5 km N. of São
João da Chapada, road to Inhã. Elev. 1200 m.

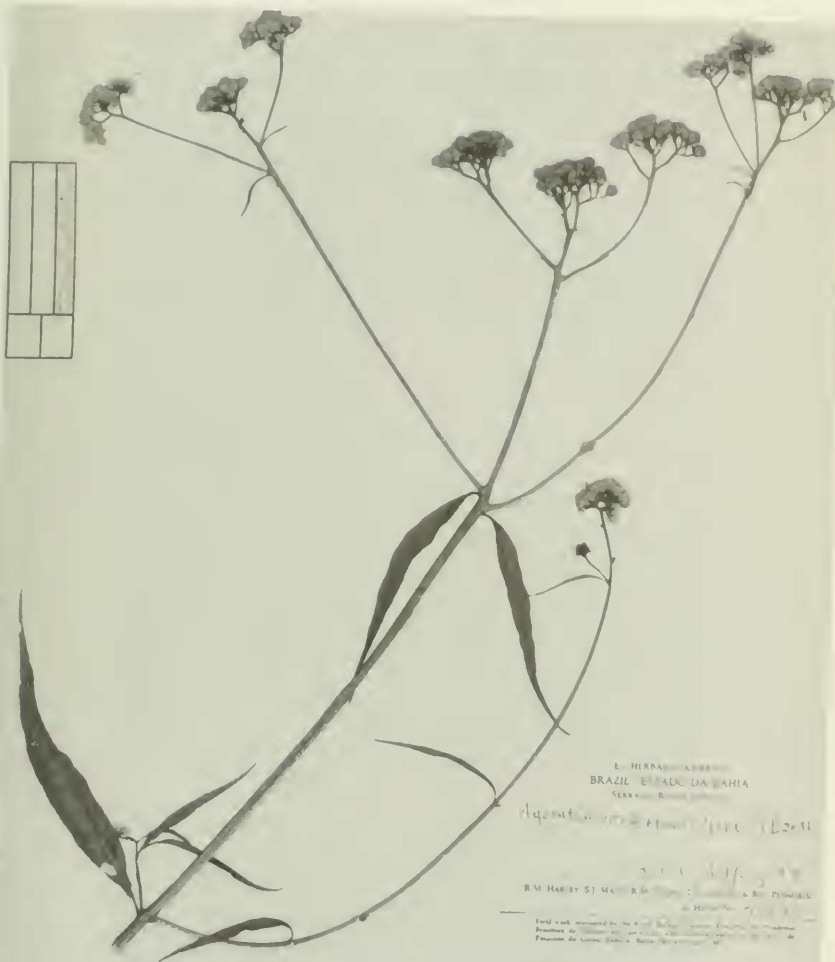
H S Irwin, S F da Fonseca,
R Sousa, B Reis dos Santos,
J Ramos

26 March 1979

Field work conducted with the collaboration of the Universidade de Brasília and
the Instituto de Pesquisas e Experimentação Agrícola de Brasília supported in
part by funds from the National Science Foundation



Acritopappus subtomentosus R. M. King & H. Robinson,
Holotype, Herbario Universidade de Brasília.



L. HERNANDEZ
BRAZIL: ESTADO DA BAHIA
SERRA DO RIBEIRO

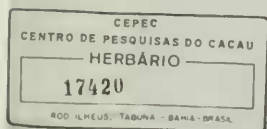
Agosto 1971

R.M. HARVEY & M. ROBINSON
Herbario de Bahia

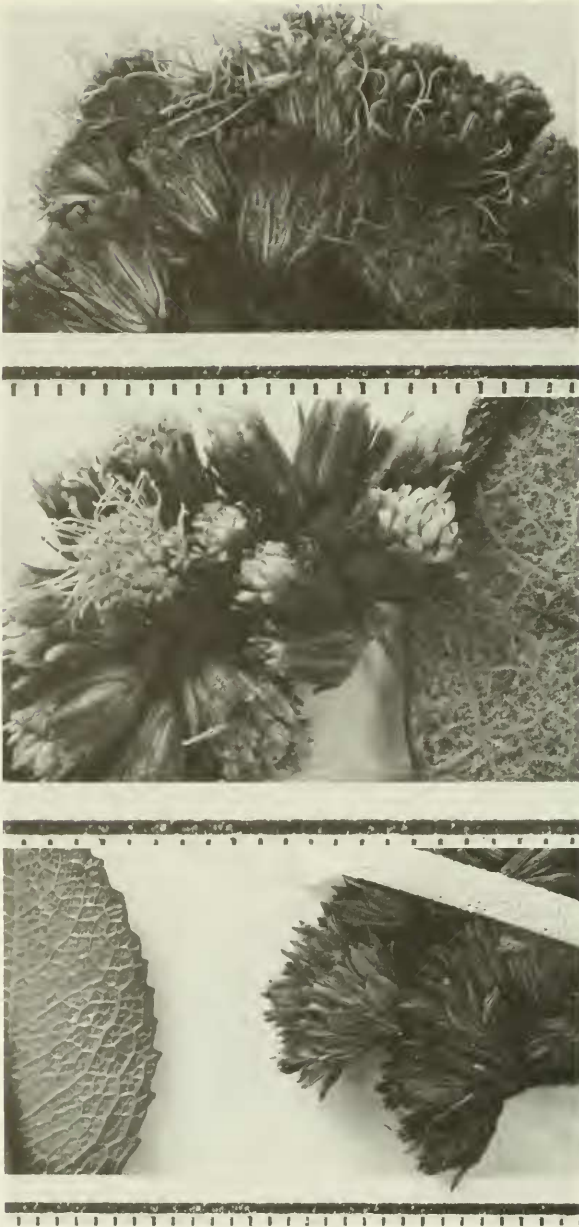
Field notes recorded by the
Discoverers of the plant, and the
Foliar of the plant, Bahia, Brazil, 1971

Acritopappus
Teixeirae King &
Robinson

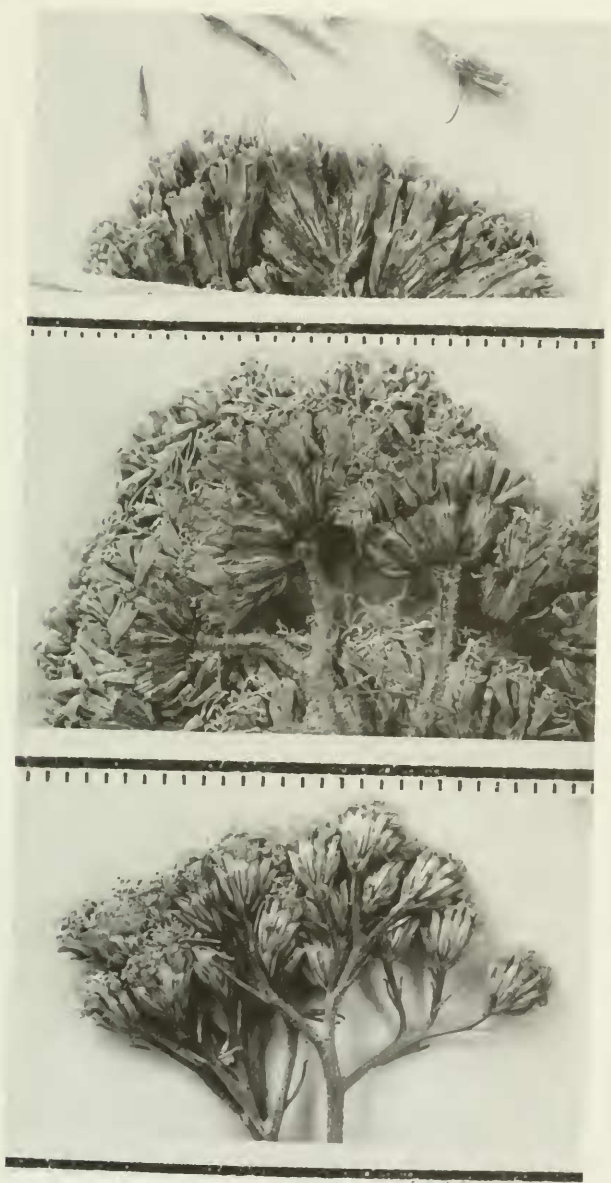
Herb. Type



Acritopappus teixeirae R. M. King & H. Robinson, Holotype,
Herbário Centro de Pesquisas do Cacau (CEPEC), Itabuna, Bahia.



Enlargements of heads of *Acritopappus*. Top. *A. hagei*. Middle. *A. morii*. Bottom. *A. prunifolius*.



Enlargements of heads of *Aeritopappus*. Top. *A. santosii*. Middle. *A. subtomentosus*. Bottom. *A. teixeirae*.